

I CLAIM:

1. A forming apparatus adapted for forming a foamed body from a foamable plastic material under pressure control, said forming apparatus comprising:

5 a pressure chamber;

 a first mold unit mounted within said pressure chamber, said first mold unit including a first upper mold and a first lower mold that can engage said first upper mold to define a first mold cavity between said
10 first upper and lower molds, the plastic material being placed into said first mold cavity so as to undergo cross-linking and foaming, thereby forming a foamed blank, which generates a foaming pressure within said first mold cavity; and

15 a pressure-adjusting device operable to adjust a pressure in said pressure chamber to a forming pressure so that said forming pressure is applied to said foamed blank so as to permit said foamed blank to expand, thereby forming the foamed body under said forming
20 pressure.

2. The forming apparatus as claimed in Claim 1, wherein said first mold unit further includes a first temperature-sensing element mounted on one of said first upper and lower molds for sensing a temperature
25 of said first upper and lower molds.

3. The forming apparatus as claimed in Claim 1, further comprising a second mold unit, said second mold unit

being mounted within said pressure chamber and including a second upper mold and a second lower mold that can engage said second upper mold to define a second mold cavity between said second upper and lower molds, said second mold cavity in said second mold unit having a volume larger than that of said first mold cavity in said first mold unit, at least one of said second upper and lower molds being formed with several air passages that are in fluid communication with said second mold cavity and said pressure chamber, said pressure-supplying unit being operable to adjust the pressure in said pressure chamber to said foaming pressure so that the foamed blank can be moved from said first mold unit into said second mold unit under said foaming pressure, after which the pressure in said pressure chamber can be reduced by said pressure-adjusting device to said forming pressure so that said foamed blank expands within said second mold cavity in said second mold unit under said forming pressure to form the foamed body.

4. The forming apparatus as claimed in Claim 3, further comprising a conveying unit that is mounted within said pressure chamber and that is located between said first and second mold units for moving said foamed blank from said first mold unit into said second mold unit, said conveying unit including a vertical rotating shaft journaled in said pressure chamber, a connecting rod

connected pivotally to and swingable relative to said rotating shaft and having a free end, and a suction cup mounted fixedly on said free end of said connecting rod so as to suck and move said foamed blank from said first mold unit into said second mold unit.

5. The forming apparatus as claimed in Claim 3, wherein said pressure-adjusting device includes a pressure-supplying unit for increasing the pressure in said pressure chamber to said foaming pressure before said first mold unit is opened, and a pressure-adjusting valve for reducing the pressure in said pressure chamber from said foaming pressure to said forming pressure after said foamed blank is moved into said second mold cavity in said second mold unit.

6. The forming apparatus as claimed in Claim 5, wherein said pressure-supplying unit includes a pressure source in fluid communication with said pressure chamber, and a control valve disposed between said pressure source and said pressure chamber and operable to permit an increase in the pressure in said pressure chamber.

7. The forming apparatus as claimed in Claim 6, wherein said pressure source is configured as an air compressor.

8. The forming apparatus as claimed in Claim 3, wherein said second mold unit further has a second temperature-sensing element mounted on one of said second upper and lower molds for sensing a temperature of said second upper and lower molds.

9. The forming apparatus as claimed in Claim 1, further comprising a pressure-sensing element for sensing the pressure within said pressure chamber.

5 10. The forming apparatus as claimed in Claim 1, wherein said first mold unit further includes a pressure-sensing element mounted on one of said first upper and lower molds for sensing a pressure within said first mold cavity in said first mold unit.